

Hypothetical Example: Seasonally flooded agricultural lands to benefit wintering waterfowl

From Stromstad, Ronald, Ducks Unlimited Inc., Staten Island Wildlife-Friendly Farming Demonstration, proposal #058, ERP 2002 PSP.

Specific action:

Pump water onto 500 acres of agricultural land from fall until March to provide surrogate seasonal wetland habitat for greater sandhill cranes and waterfowl for feeding and/or roosting.

Goals:

1. Provide habitat for feeding and roosting for greater sandhill cranes, ducks, geese, and tundra swans.
2. Evaluate water quality effects (organic carbon and nutrients) from seasonally flooded agricultural lands.

Conceptual model:

[see Fig. 1 last page]

General description of indicators / performance measures:

Goal 1:

1. Provide habitat for feeding and roosting for greater sandhill cranes, ducks, geese, and tundra swans.

Basic indicators to be measured:

Project outputs and other factors:

1. Aerial extent of seasonally flooded land (weekly estimates from ground or aerial surveys)
2. Depth of flooding (average depth per parcel, weekly estimate from ground surveys)
3. Estimate of food availability on flooded lands (ranked poor, fair, good, for each parcel, weekly estimate from ground surveys)

Project outcomes:

Abundance and distribution of the following species:

(weekly estimates over the flooding season from ground or aerial surveys)

Greater sandhill crane
Mallard
Northern pintail
Northern shoveler
American widgeon
Gadwall
Tundra swan
White fronted goose

Snow goose

Canada goose

These data will be compared to surveys from previous years and to a survey being performed by another project at another site in the Delta. This project-specific data will also be evaluated in context with abundance data from other sites along the Pacific flyway.

Goal 2:

2. Evaluate water quality effects (organic carbon and nutrients) from seasonally flooded agricultural lands.

Basic indicators to be measured:

Project outputs and other factors:

1. Volume of water pumped onto land
2. Concentrations of organic carbon and nutrient in water pumped onto land (1 sample per 5,000 gallons, analyzed for pH, temperature, ammonia, total nitrogen, phosphorous, TSS, DOC, TOC and SUVA)
3. Amount of time water held on land (retention time)
4. Precipitation during retention time (rain gauge checked weekly)

Project outcomes:

1. Volume of water pumped back into waterways
2. Concentrations and quality of organic carbon in water pumped back (1 sample per 5,000 gallons, analyzed for TSS, DOC, TOC and SUVA)
3. Concentrations of nutrients in water pumped back (1 sample per 5,000 gallons, analyzed for pH, temperature, ammonia, total nitrogen, phosphorous)

Figure 1 - Conceptual Model of Agricultural Development and Populations of Sandhill Cranes and Waterfowl

